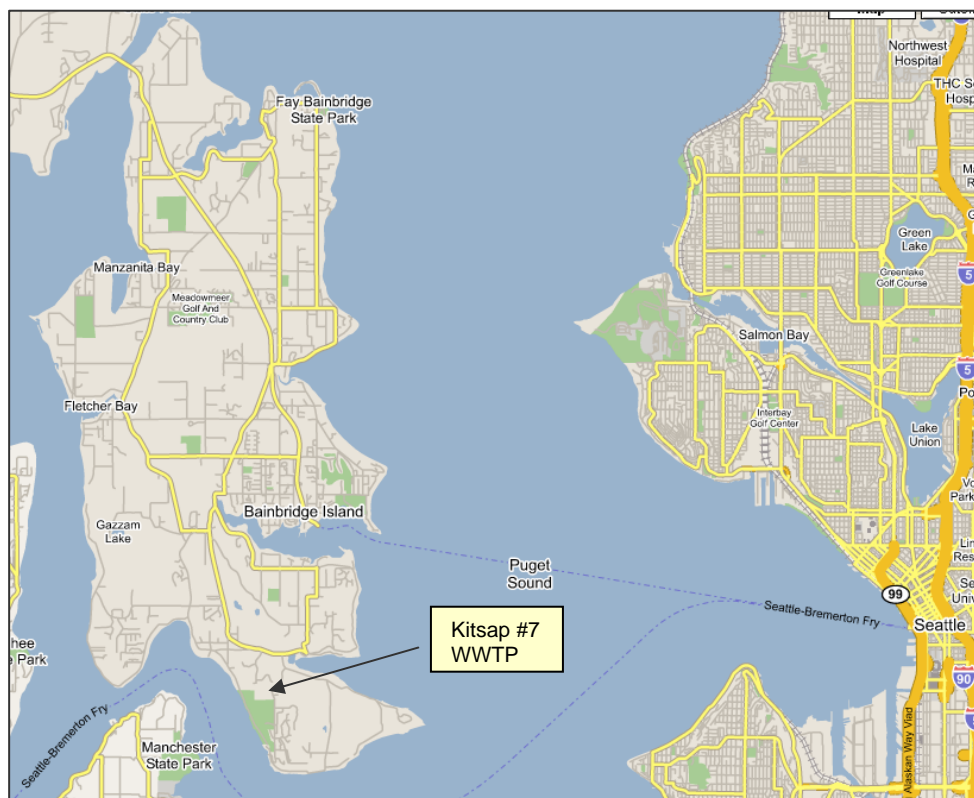


FACT SHEET FOR NPDES PERMIT WA-003031-7

KITSAP SEWER DISTRICT NO. 7



SUMMARY

Kitsap Sewer District No. 7 owns and operates a wastewater treatment plant (WWTP) located at the southern tip of Bainbridge Island. This WWTP uses extended aeration activated sludge technology for secondary treatment system in a single oxidation ditch. The facility currently has a maximum monthly average flow capacity of 0.142 million gallons per day (MGD) and plans to expand to 0.28 MGD within the next three years. The expansion will add a second aeration basin, a third clarifier, a second UV bank, a second digester, and a solids handling facility.

The WWTP currently operates under the terms and conditions of the existing NPDES permit number WA-003031-7. This fact sheet is for the proposed permit for the WWTP.

GENERAL INFORMATION	
Applicant	Kitsap Sewer District No. 7 1939 Park View Dr. NE Bainbridge Island, WA 98110
Facility Name and Address	Kitsap Sewer District No. 7 Sewage Treatment Plant 2901 Fort Ward Hill Road NE Bainbridge Island, WA
Type of Treatment	Extended Aeration Activated Sludge
Discharge Location	Rich Passage (east end emptying to central Puget Sound) Latitude: 47° 34' 14.4" N Longitude: 122° 31' 54.3" W
Water Body ID Number	WA-15-0030

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the Wastewater Discharge Permit Program.

The regulations adopted by the state include procedures for issuing permits (chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (chapter 173-221 WAC), water quality criteria for surface and ground waters (chapters 173-201A and 200 WAC), and sediment management standards (chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see *Appendix A--Public Involvement* of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in *Appendix D--Response to Comments*.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

Kitsap County Sewer District No. 7, known as Fort Ward Sewer District prior to the late 1970's, is located at the southern tip of Bainbridge Island. The District was originally set up to serve the homes on the Fort Ward military base with a sewage collection system that collected and discharged untreated sewage to an outfall in Rich Passage. An NPDES permit was issued July 28, 1977, that required secondary sewage treatment of its raw sewage discharge. Construction of the new secondary treatment plant was completed in August 1996 using a combination of state grant and loan funding.

The population in the area continues to grow, and the facility now treats domestic waste from approximately 250 residences in the Fort Ward, Lynwood Center, and Rockaway Beach communities. There are no industrial dischargers to this plant. An expansion is planned for 2006 to double the design maximum monthly average flow of the plant from 0.14 to 0.28 MGD.

COLLECTION SYSTEM STATUS

There are currently three lift stations in the collection system. Two stations, Lynwood Center and Rockaway Beach, are maintained by the city of Bainbridge. A significant increase in the number of hookups is expected in the Lynwood Center and Rockaway Beach areas in the next couple of years. Lynwood Center influent currently surges into the plant about 13 to 14 times a day. The low flows from this area result in significantly long residence times in the collection system, resulting in odorous, corrosive, high H₂S content, influent. This should improve as more Lynwood Center homes are connected.

There appears to be very little infiltration and inflow (I/I) within the system as indicated by the small increases in flow observed during heavy rains. There are some leaky manholes and a house or two that are known significant contributors of I/I. These problems are being addressed.

TREATMENT PROCESSES

The plant headworks includes a comminutor with a bypass channel for a manual bar screen, a Parshall flume for influent flow measurement, and a grit channel. From the headworks, sewage flows through a single aeration basin with one floating aerator and one floating mixer, then through two secondary clarifiers, and finally through an ultraviolet disinfection channel. A Parshall flume is located after the disinfection channel for effluent flow measurement. A schematic of the treatment process at build-out is shown in Appendix E.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility via a 12-inch diameter ductile iron outfall into Rich Passage. The outfall pipe extends 887 feet from shore to a discharge depth of 60 feet below mean lower low water. The pipe discharges through a 6-inch orifice. A fish farming net pen operation is located about 100 yards west of the outfall.

RESIDUAL SOLIDS

In addition to the incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment, solids are removed at the headworks and waste activated sludge is removed from the secondary clarifiers. Grit, rags, and scum are drained and disposed of as solid waste. Sludge removed from the clarifiers is stored in an aerobic digestion/holding tank and then trucked to another sewage treatment plant in Kitsap County for final treatment and disposal.

PERMIT STATUS

The previous permit for this facility was issued on October 15, 2001, and expires on June 30, 2006. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, and fecal coliform bacteria.

An application for permit renewal was submitted to the Department on December 28, 2005, and accepted as complete by the Department on January 18, 2006.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last Class I inspection on May 3, 2005, during which the facility appeared in good shape and well maintained. The inspection reports are filed in the record section at the Northwest Regional Office of the Department.

Over the course of the previous permit, the Permittee remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. DMR data is available in Appendix F.

WASTEWATER CHARACTERIZATION

Concentrations of pollutants in the influent and effluent were reported in the NPDES application and in discharge monitoring reports. Influent and effluent are characterized as shown in Table 1.

Table 1. Influent and Effluent Characterization

Parameter	Influent	Effluent
BOD ₅	192 mg/L	3 mg/L
TSS	166 mg/L	10 mg/L
pH		6.5 – 8.8
Fecal Coliform		1 count / 100 mL

source: DMR data, September 1996 - November 2005

EXISTING LIMITS

The existing permit placed effluent limitations on influent flow, 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, and Fecal Coliform bacteria. The effluent limitations as stipulated in Condition S1.A of the existing permit are as listed in Table 2.

Table 2. Existing Effluent Limitations

Parameter	Average Monthly	Average Weekly
Biochemical Oxygen Demand (5-day)	30 mg/L, 35 lb/day	45 mg/L, 53 lb/day
Total Suspended Solids	30 mg/L, 35 lb/day	45 mg/L, 53 lb/day
Fecal Coliform Bacteria	200/100 mL	400/100 mL
pH	Shall not be outside the range 6.0 to 9.0	

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the surface water quality standards (chapter 173-201A WAC), ground water standards (chapter 173-200 WAC), sediment quality standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria. The design criteria for this treatment facility, shown in Table 3, are from the engineering report prepared by HR Esvelt Engineering May 17, 2004, and approved by Ecology on July 6, 2004.

Table 3. Design Standards for Kitsap #7 WWTP

Parameter	Design Quantities	
	Existing	Post Expansion
Annual average flow	0.12 mgd	0.23 mgd
Maximum monthly average flow	0.142 mgd	0.28 mgd
Peak hourly flow	0.36 mgd	0.71 mgd
Maximum hydraulic capacity	1.4 mgd	1.4 mgd
BOD influent loading	300 lb/day	600 lb/day
TSS influent loading	300 lb/day	600 lb/day

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in chapter 173-221 WAC (state). These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment for municipal wastewater.

The technology-based limits shown in Table 4 for pH, fecal coliform, BOD₅, and TSS are from chapter 173-221 WAC.

Table 4. Technology-based Limits

Parameter	Limit
pH	Shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD ₅ (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
Chlorine	Average Monthly Limit = 0.5 mg/L Average Weekly Limit = 0.75 mg/L

The technology-based monthly average limitation for chlorine is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/liter chlorine residual is maintained after fifteen minutes of contact time. See also Metcalf and Eddy, *Wastewater Engineering, Treatment, Disposal and Reuse*, Third Edition, 1991. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/liter chlorine limit on a monthly average basis. According to WAC 173-221-030(11)(b), the corresponding weekly average is 0.75 mg/liter.

The existing permit has no chlorine limit because UV is used for disinfection instead of chlorine. However, since chlorine is used as backup disinfection, the proposed permit includes a chlorine limit that will apply when backup chlorination is used. The proposed chlorine limits are the technology-based limits discussed above.

The following technology-based mass limits for BOD and TSS are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b):

Monthly effluent mass loadings (lb/day) were calculated as the maximum monthly design flow (0.142 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 35 lb/day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 53 lb/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established surface water quality standards. The Washington State surface water quality standards (chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's water quality standards for surface waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

ANTIDEGRADATION

Washington State's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on Washington State's Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic waterbody uses. Since the major toxicant of concern from this outfall that is significantly impacted by receiving water conditions is ammonia, the critical condition occurs when pH is highest.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Rich Passage which is designated as a Class AA (Extraordinary) receiving water in the vicinity of the outfall (chapter 173-201A WAC). The outfall is near the east end of Rich Passage, where it enters central Puget Sound. Characteristic uses of Class AA waters include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized in Table 5.

Table 5. Class AA Surface Water Criteria – Marine Water

Parameter	Water Quality Criteria
Fecal Coliform	14 organisms/100 mL maximum geometric mean
Dissolved Oxygen	7.0 mg/L minimum
Temperature	13°C maximum or incremental increases above background
pH	7.0 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts

MIXING ZONES AND DILUTION RATIOS

The water quality standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100. The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

Figure 1 depicts the chronic and acute mixing zones for this outfall. In estuaries, chronic mixing zones shall comply with the most restrictive combination of the following: (i) Not extend in any horizontal direction from the discharge port(s) for a distance greater than two hundred feet plus the depth of water over the discharge port(s) as measured during mean lower low water; and (ii) Not occupy greater than twenty-five percent of the width of the water body as measured during mean lower low water (WAC 173-201A-400). An acute mixing zone shall not extend beyond ten percent of the distance as the chronic mixing zone.

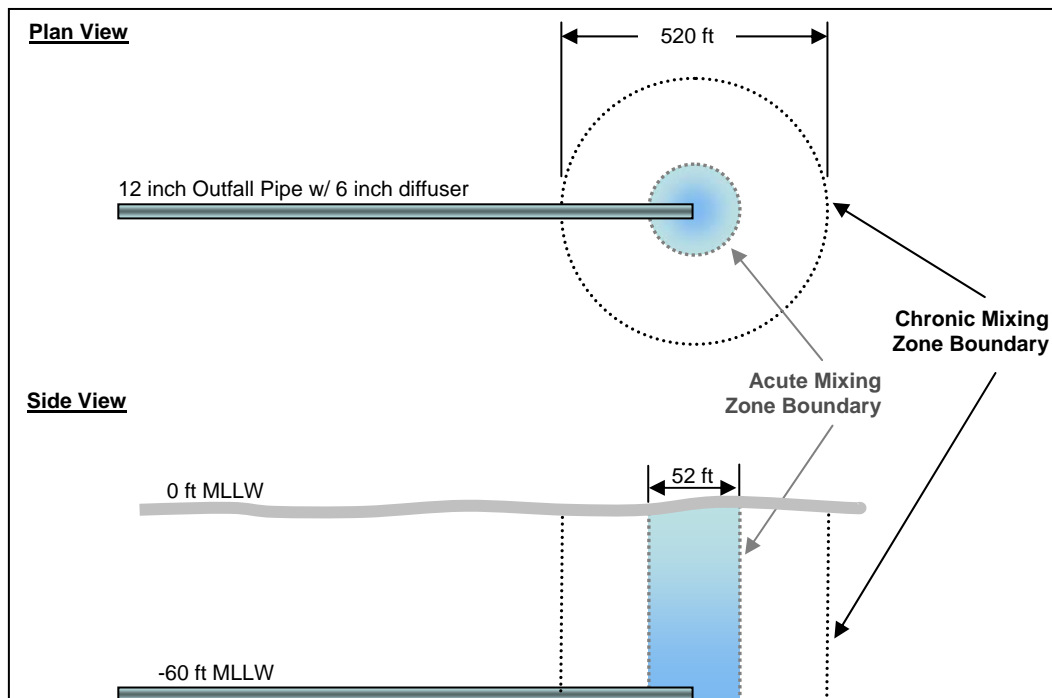


Figure 1. Outfall Mixing Zone Depiction

Dilution Modeling

Dilution factors (the ratio of receiving water to effluent) that occur within this zone have been determined at the critical condition using dilution models.

The outfall was modeled as part of the *Kitsap County Mixing Zone Study* (WDOE, July 1997). Ambient currents and water column density profiles were obtained from regional data sets at the Department's Sinclair Inlet Ambient Monitoring Station (SIN001) and were verified with on-site measurements. Regional and site-specific data compared well and showed that currents in this area are never slack and the water column does not tend to stratify in density very much. Effluent dilution was modeled for reasonable worst-case conditions with the U.S. EPA's UM Model (contained in the PLUMES mixing model interface, Edition 3, March 14, 1994). At the chronic mixing zone boundary, dilution is based on a dry weather average design flow of 0.114 mgd, a single 6-inch orifice, and a median ambient current speed of 0.29 m/s from the on-site data set. The resulting chronic dilution is 479:1. An acute mixing zone dilution was calculated assuming a peaking factor of 2, or a peak hourly flow of 0.285 mgd, a single 6-inch orifice, and a 90th percentile current speed of 0.51 m/s from the regional data set. The resulting dilution at the boundary of the acute mixing zone is 66:1.

Dilutions were also modeled by H.R. Esvelt Engineering (Esvelt, 1993) as part of outfall design. The dilution model used was the July 1, 1992, version of PLUMES. Ambient currents in the vicinity of the outfall were measured by Yuhl and Associates engineers in October 1992. These measurements showed minimum currents in the range of 0.5 to 1.0 feet per second (0.15-0.3 m/s), but to be conservative, speeds of 0.05 - 0.2 fps (0.015 - 0.06 m/s) were used for modeling. Water column density profiles were taken from the Department of Ecology's Port Orchard-at-Brownsville Ambient

Monitoring Station (POD005). These profiles showed little stratification of the water column. At the chronic mixing zone boundary, dilution is based on a maximum monthly average design flow of 0.142 mgd, a single 6-inch diameter port, and an ambient current speed of 0.06 m/s. The resulting chronic dilution is 686:1. An acute mixing zone dilution was calculated assuming a peak hourly design flow of 0.456 mgd, a 12-inch diameter future port (assuming the existing 6-inch orifice plate is removed so discharge is through the 12-inch pipe), and a current speed of 0.06 m/s. The resulting dilution at the boundary of the acute mixing zone is 212:1.

Modeled dilutions are summarized in Table 6. To be conservative, the lowest dilution ratios will be used to determine compliance with water quality standards.

Table 6. Modeled Outfall Dilution Ratios

Mixing Study	Current	Water Col. Data	Effluent Flow	Port Diameter	Acute Dilution Ratio	Chronic Dilution Ratio
Esvelt 1993	0.061 m/s	POD005	0.142 mgd	6"	----	686:1
	0.061 m/s	POD005	0.456 mgd	12"	212:1	----
Ecology 1997	0.29 m/s	SIN001	0.114 mgd	6"	----	479:1
	0.51 m/s	SIN001	0.456 mgd	6"	66:1	----

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. As discussed earlier, a mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in chapter 173-201A WAC. The dilution ratios of receiving water to facility effluent that occur within these zones at critical conditions are 479:1 and 66:1 for chronic and acute zone, respectively.

The impacts of BOD, pH and temperature, and fecal coliform are evaluated below, considering the dilution factors described above.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants—their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, metals, and other toxics were determined as shown below, using the dilution factors described above.

BOD₅--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at critical condition. Under critical conditions there is no predicted violation of the water quality standards for surface waters. Therefore, no effluent limitation for temperature was placed in the proposed permit.

pH--Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the water quality standards for surface waters.

Fecal Coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 66:1. Under critical conditions, there is no predicted violation of the water quality standards for surface waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the water quality standards for surface waters or from having surface water quality-based effluent limits.

Since this facility has no industrial users and does not use chlorine for disinfection, the only toxic of concern is ammonia. The facility collected ammonia samples three times during the existing permit cycle. The maximum ammonia measured was 0.56 mg/L, which indicates that there is no reasonable potential to exceed the ammonia water quality criteria. Ammonia sampling and priority pollutant metals sampling are being proposed with this permit.

WHOLE EFFLUENT TOXICITY

The water quality standards for surface waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. The discharge will be reevaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the sediment management standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated ground water quality standards (chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 2004) for Activated Sludge plants < 2 MGD.

Additional monitoring is required in order to further characterize the effluent. These monitored pollutants could have a significant impact on the quality of the surface water. Priority pollutant metals shall be tested to determine if there is a reasonable potential to exceed water quality criteria. Additional monitoring is also required to prepare the Permittee to meet the requirements of the next permit application.

LAB ACCREDITATION

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility (accreditation #M550, <http://www.ecy.wa.gov/apps/eap/acclabs/lab.asp?id=550>) is accredited for Biochemical Oxygen Demand (BOD₅/CBOD₅), pH, Total Suspended Solids, and Fecal Coliform count.

OTHER PERMIT CONDITIONS

REPORTING AND RECORD KEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

The proposed permit requires submission of an updated O&M manual for the entire sewage system, including the treatment train, before the completion of any future significant facility expansions or upgrades.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems, the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state water quality standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under chapter 70.95J RCW, chapter 173-308 WAC "Biosolids Management," and chapter 173-350 WAC "Solid Waste Handling Standards." The disposal of other solid waste is under the jurisdiction of the Kitsap County Health District.

PRETREATMENT

FEDERAL AND STATE PRETREATMENT PROGRAM REQUIREMENTS

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department of Ecology (Department) has been delegated authority to administer the Pretreatment Program (that is, act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works [POTWs]). Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (for example, tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, Part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing state waste discharge permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)]. (Industries discharging waste water that is similar in character to domestic waste water are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.) Industrial dischargers need to apply for a state waste discharge permit sixty (60) days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (for example, tracking the number and general nature of industrial dischargers to the sewerage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to

apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities [40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.].

WASTEWATER PERMIT REQUIRED

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

REQUIREMENTS FOR ROUTINE IDENTIFICATION AND REPORTING OF INDUSTRIAL USERS

The NPDES permit requires non-delegated POTWs to "take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

DUTY TO ENFORCE DISCHARGE PROHIBITIONS

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass-through or interference. The definitions of pass-through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition, wastes with excessive BOD, petroleum-based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

SUPPORT BY THE DEPARTMENT FOR DEVELOPING PARTIAL PRETREATMENT PROGRAM BY POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular, assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

EFFLUENT MIXING STUDY

An effluent mixing study shall be prepared by the Permittee prior to the completion of any significant facility upgrades or enhancements. The Department uses the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the water quality standards for surface waters (chapter 173-201A WAC). Condition S.9 of this permit requires the Permittee to determine the mixing characteristics of the discharge for any significant upgrades or expansions of the facility. Mixing will be measured or modeled under post-expansion conditions specified in the permit to assess whether assumptions made about dilution will protect the receiving water quality outside the allotted dilution zone boundary.

OUTFALL EVALUATION

Proposed permit condition S.11 requires the Permittee to conduct an inspection of the outfall line and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet water quality standards, sediment quality standards, or ground water standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

Laws and Regulations (<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information

(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

2004. Permit Writer's Manual. Publication Number 92-109.

1997. Kitsap County Mixing Zone Study. Publication Number 97-328.

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on January 21, 2006, and January 28, 2006, in the *Bainbridge Isle Review* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on April 15, 2006, in the *Bainbridge Island Review* to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30)-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (425) 649-7201, or by writing to the address listed above.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART--An acronym for "all known, available, and reasonable methods of prevention, control, and treatment."

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in waste water. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect waste water.

Average Monthly Discharge Limitation--The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation--The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD₅--The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD₅ is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect waste waters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water 90 percent.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the waste water. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User--A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference--A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) [including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

Pass-through--A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of state water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 percent of treatment plant design capacity criteria and discharges <25,000 gallons per day; or
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass-through or interference at the POTW (for example, facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)--A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, non-contact cooling, and boiler blow-down wastewater); contributes a process waste-stream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov/programs/wq/wastewater/index.html>

APPENDIX D--RESPONSE TO COMMENTS

Comment:

In a letter from Mark Bubenik dated May 11, 2006, The Suquamish Tribe expressed concern that the discharge from this facility could result in shellfish harvesting restrictions that would preclude them from harvesting shellfish in the area. The Tribe requested that the permit not be issued until “(1) an evaluation of a shellfish closer zone for the facility is determined by DOH, and (2) if there is an unavoidable shellfish harvest closure zone that impacts the Tribe’s Treaty guaranteed shellfish harvest area, the Tribe and the Applicant need to negotiate a mitigation agreement.”

Response:

Frank Meriwether of DOH’s Shellfish program was contacted on this issue. His response was as follows (email dated June 6, 2006):

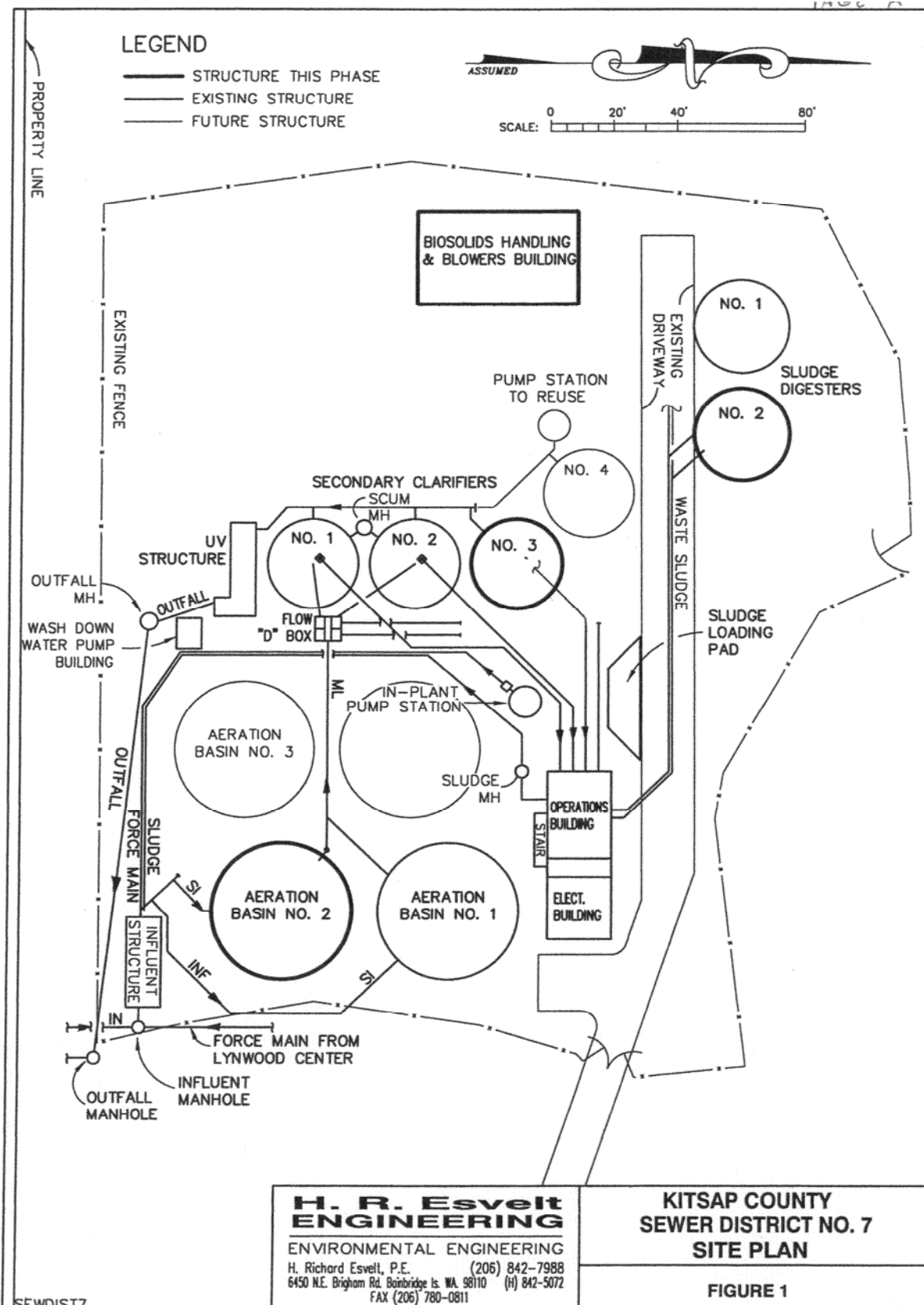
I've taken a look at my 1993 closure zone assessment for the Kitsap County SD #7 WWTP outfall. Here's what I see:

- I don't believe I need to do a closure zone re-evaluation for a change for a max month design flow change to 0.28 mgd. In 1993 I did an assessment for a possible design flow of 0.30 mgd, using both a 12-inch and 6-inch single port outfall. The existing closure zone is based on the larger of the possible 1993 designs for the future plant.
- I'm attaching an aerial photo of Bean's Point for you. I think you can see the hard substrate in this area. The water really whips through here. I may be wrong, but I don't think there are many harvestable clams in the existing closure zone.

Kevin Fitzpatrick provided the Tribe with additional information in a letter dated June 13, 2006. Based on this information, the Tribe decided not to pursue the matter, as indicated in a letter from the Tribe to Ecology dated June 21, 2006. Accordingly, the permit and fact sheet will remain as written.



APPENDIX E—LAYOUT DIAGRAM OF TREATMENT FACILITY

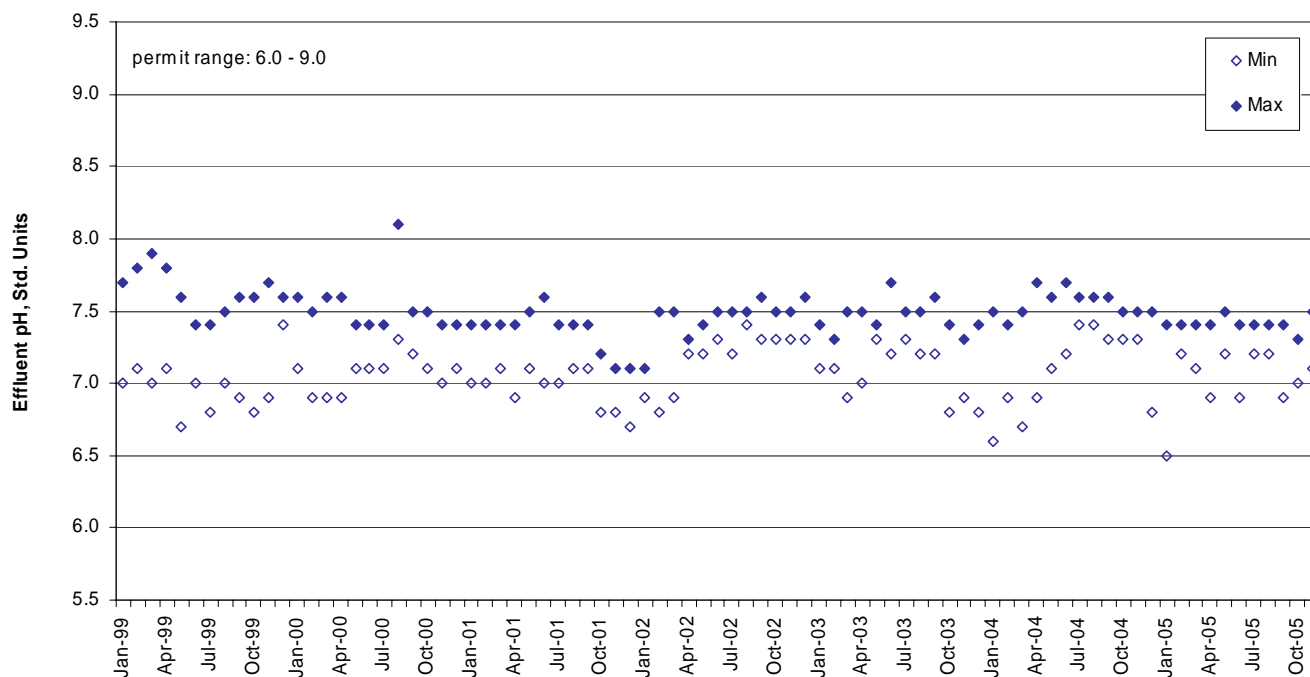
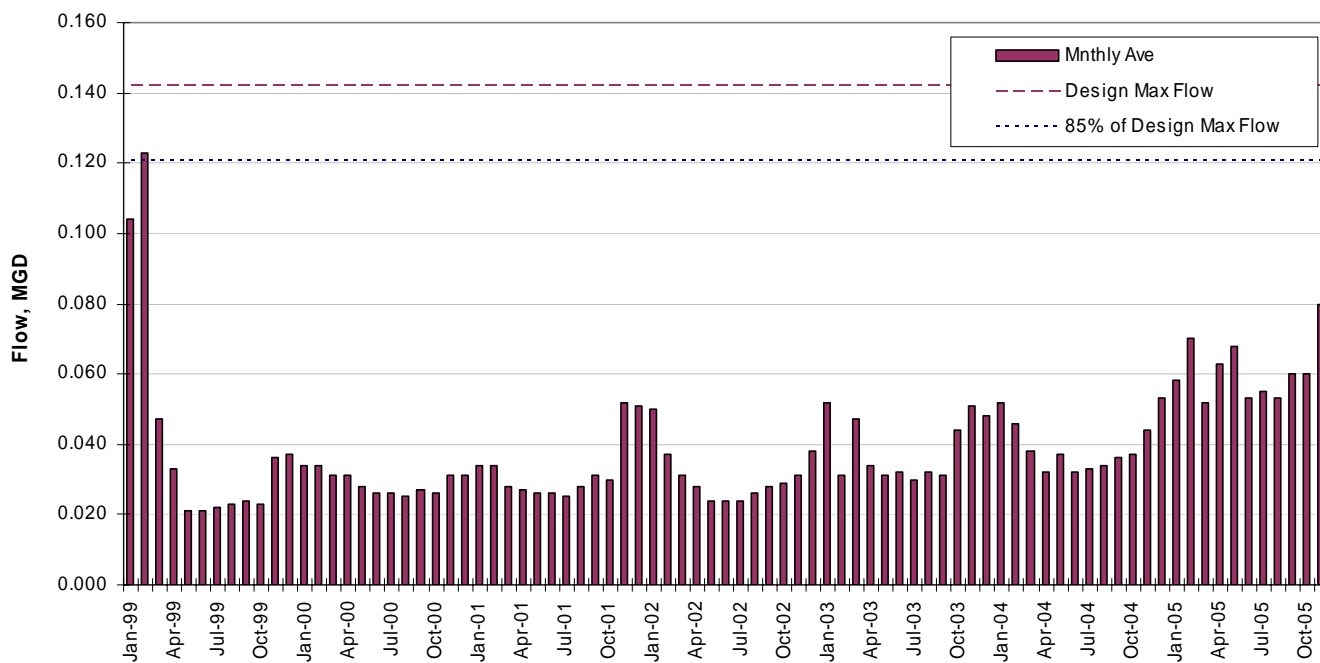


SFWDIST7

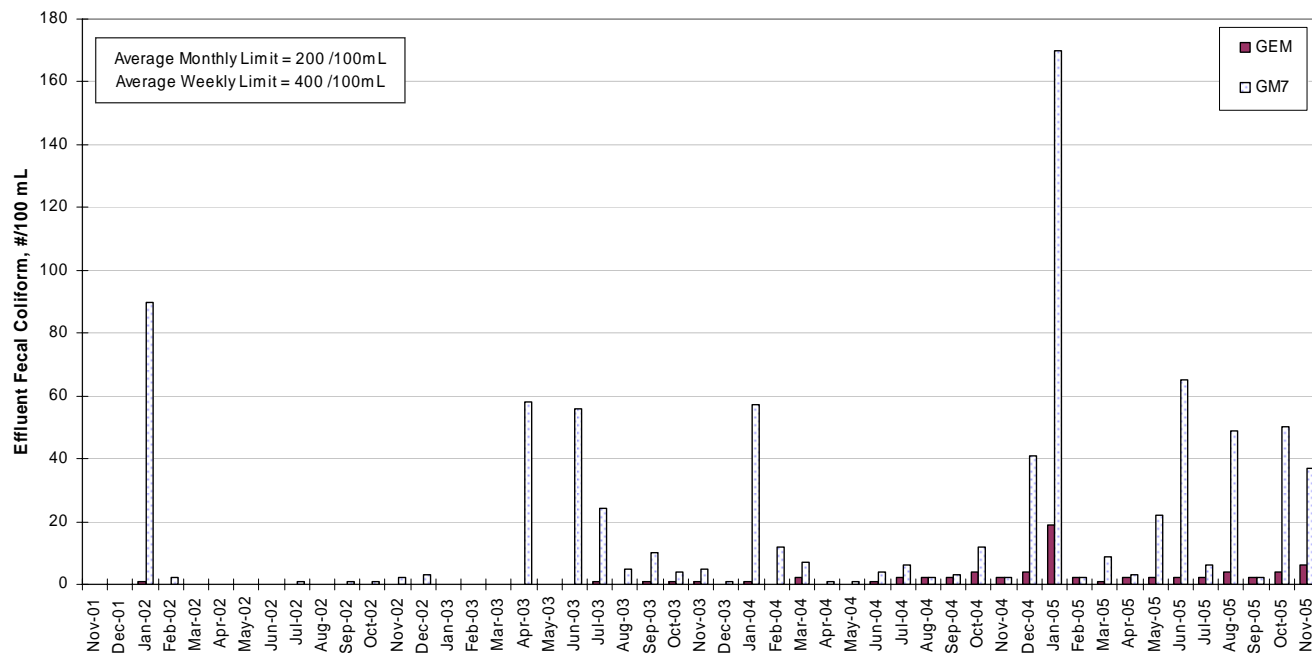
APPENDIX F—DISCHARGE MONITORING DATA, 1999 – 2005

Date	Influent										Effluent																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	BOD, mg/L		BOD, mg/L		BOD, ppd		BOD, ppd		TSS, mg/L		TSS, mg/L		TSS, ppd		TSS, ppd		Flow, MGD		Flow, MGD		Flow, MGD		Flow, MGD		BOD, mg/L		BOD, mg/L		BOD, ppd		BOD, ppd		BOD, % Removal		TSS, mg/L		TSS, mg/L		TSS, ppd		TSS, ppd		TSS, % Removal		pH		pH		Fecal Coliform, #/100 ml		Fecal Coliform, #/100 ml																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly 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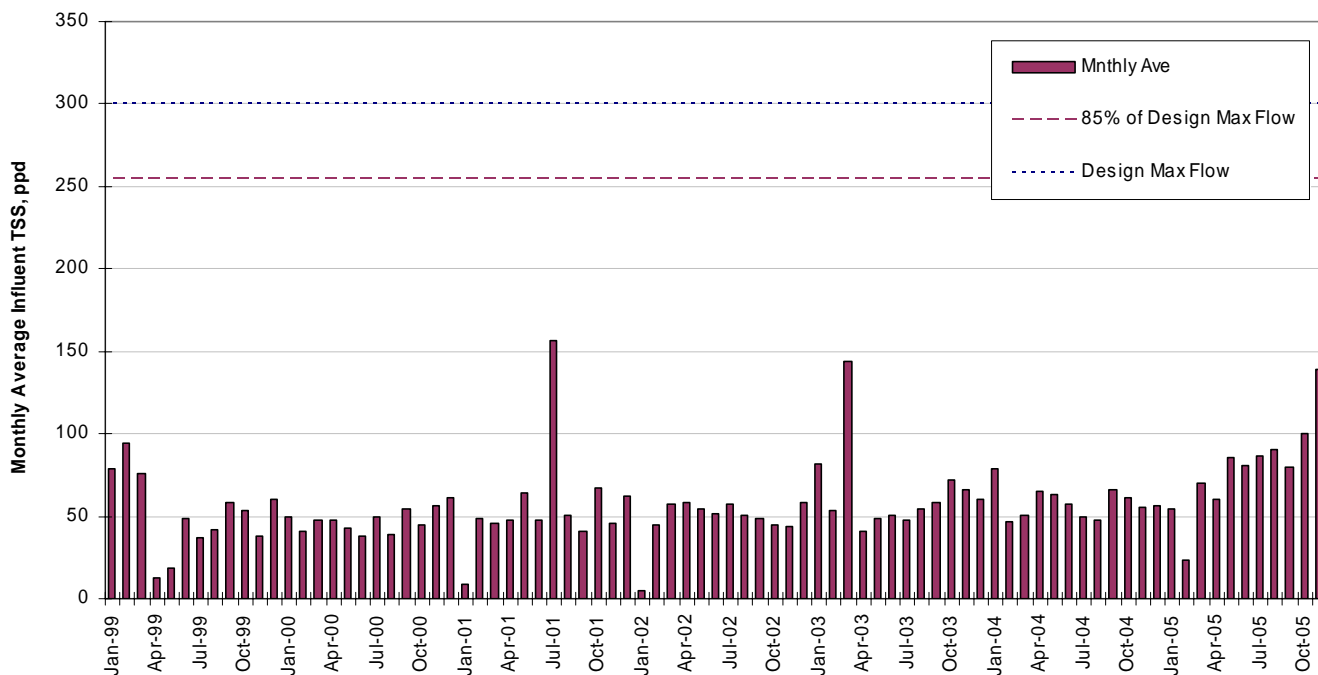
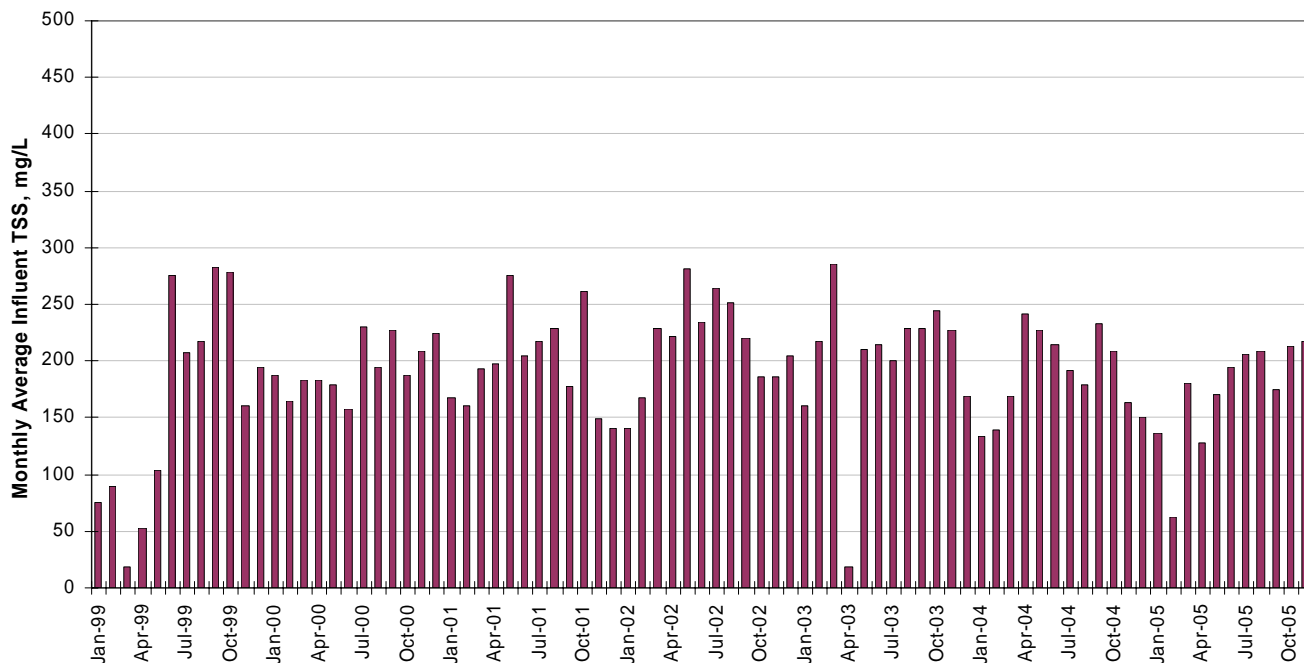
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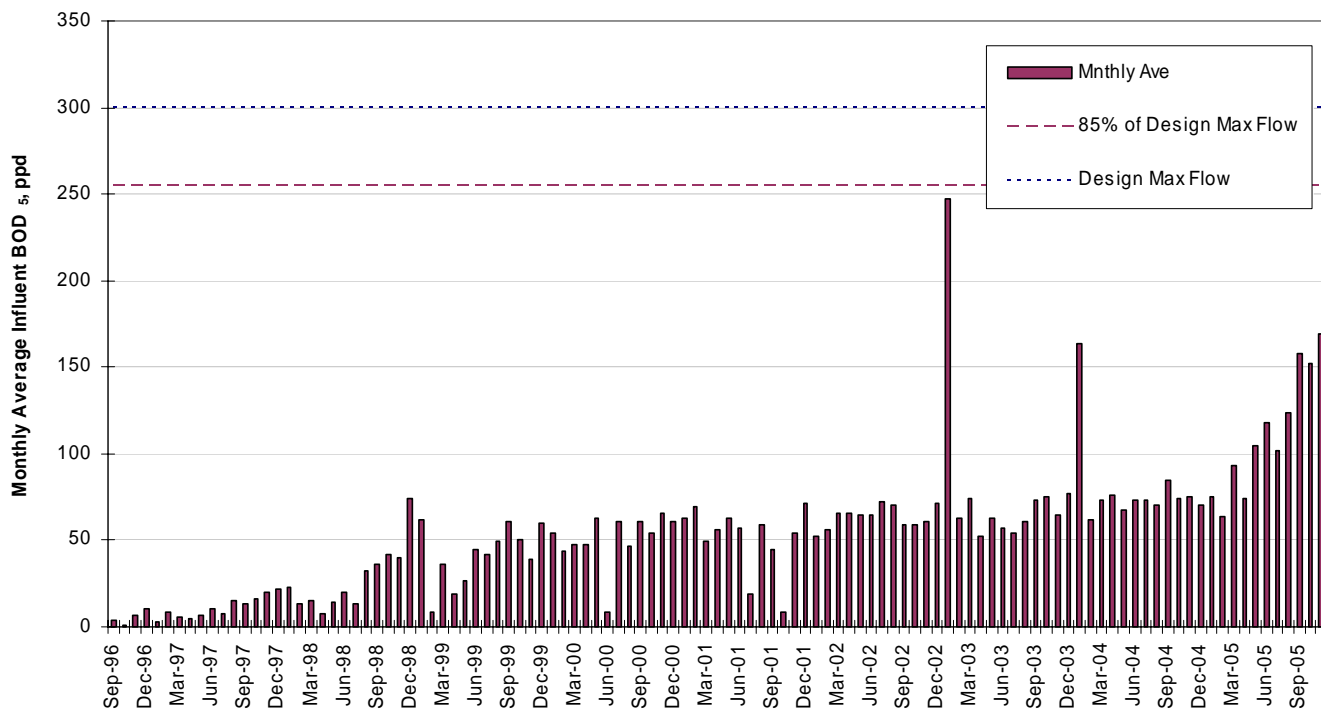
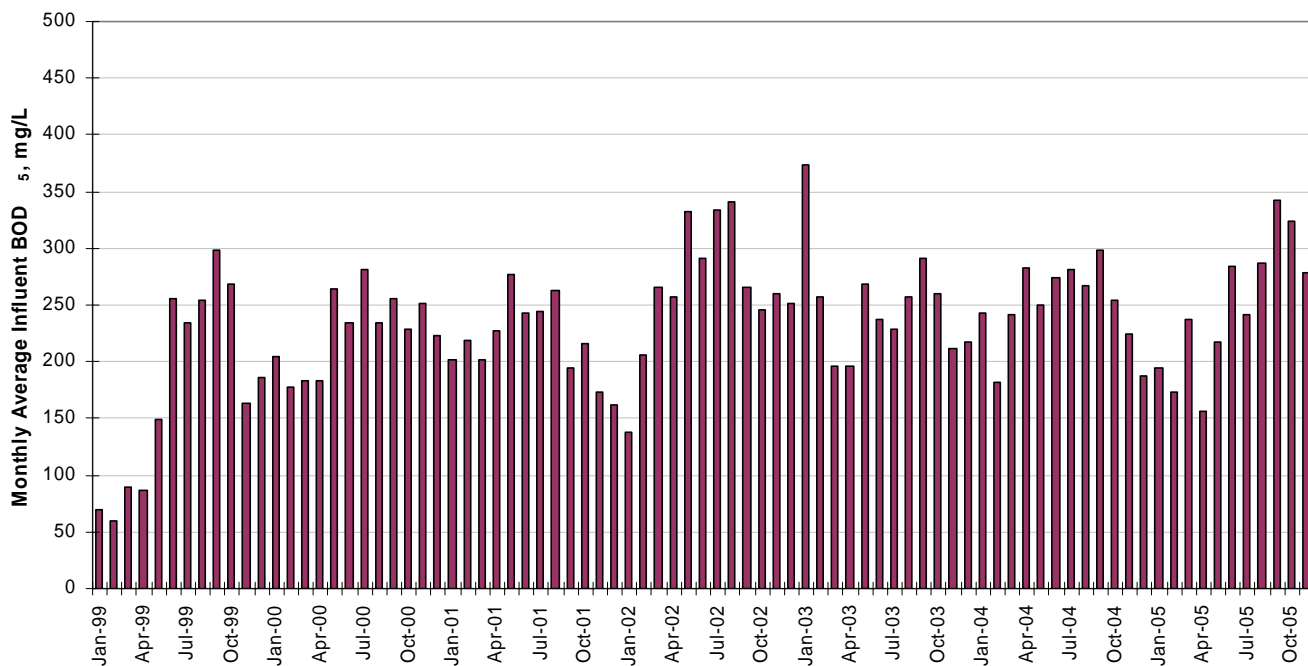
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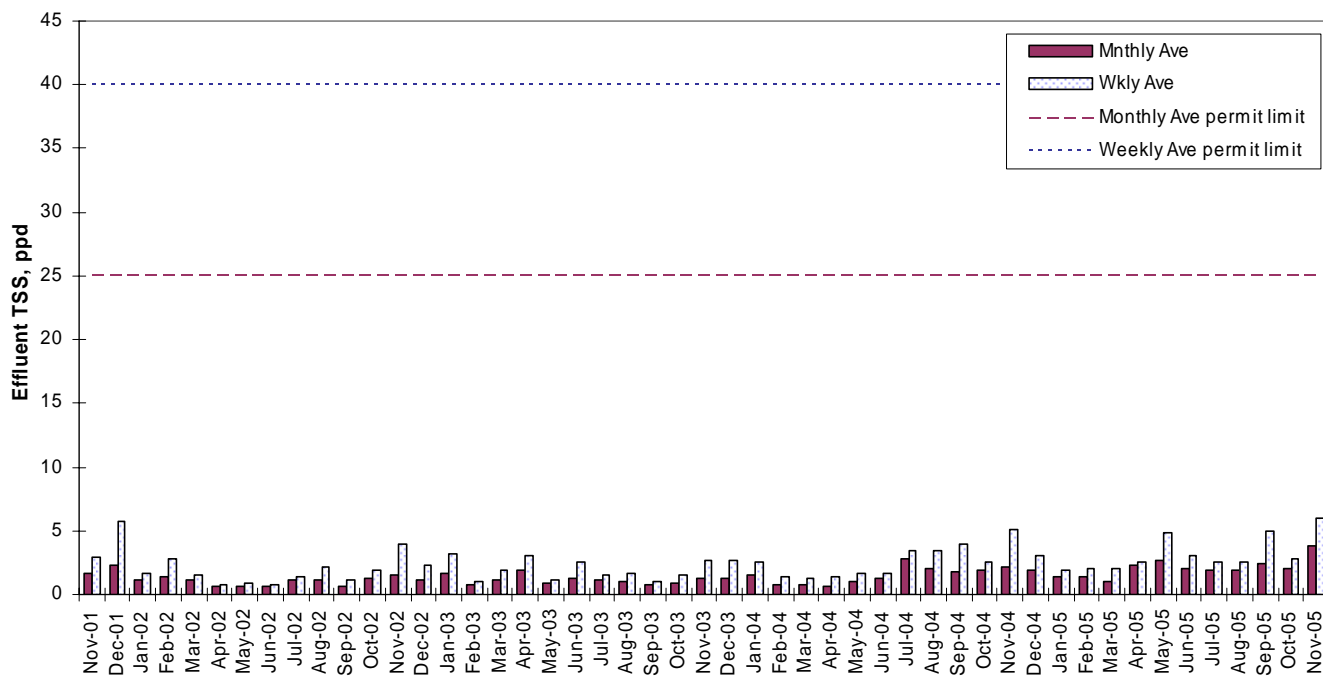
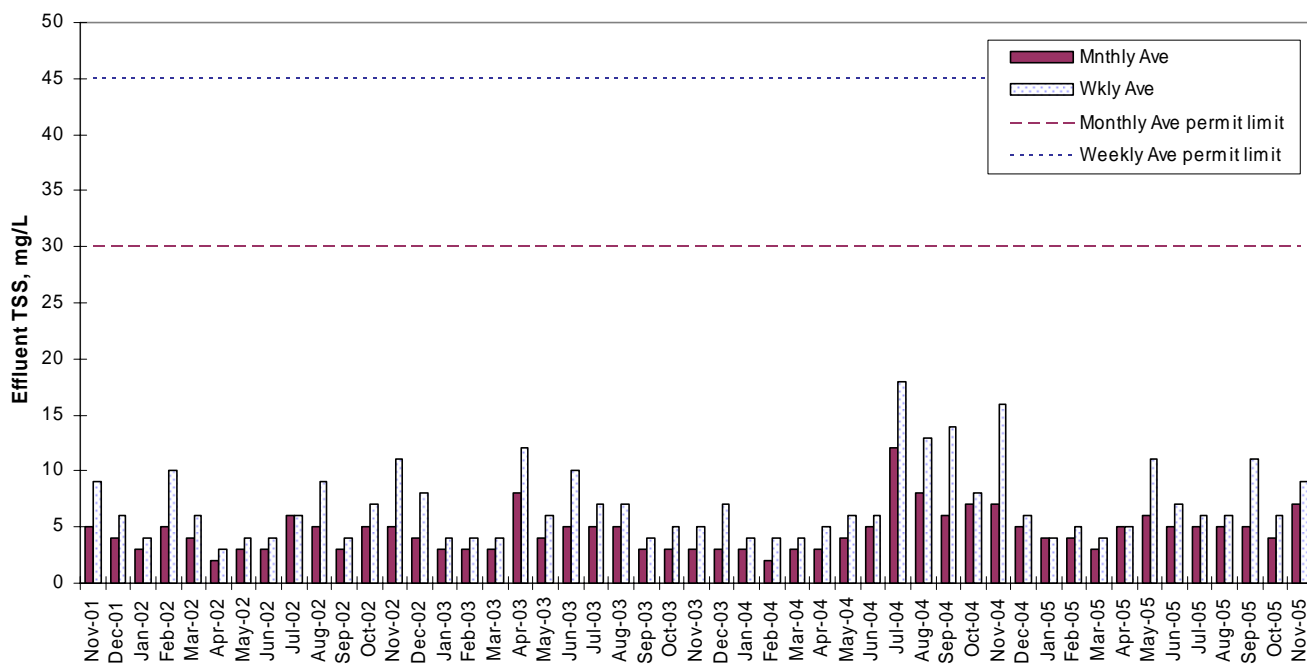
APPENDIX F—DISCHARGE MONITORING DATA, 1999 – 2005 (cont'd)



APPENDIX F—DISCHARGE MONITORING DATA, 1999 – 2005 (cont'd)



APPENDIX F—DISCHARGE MONITORING DATA, 2001 – 2005 (cont'd)



APPENDIX F—DISCHARGE MONITORING DATA, 2001 – 2005 (cont'd)

